



# United States Department of the Interior

U.S. GEOLOGICAL SURVEY  
Reston, VA 20192



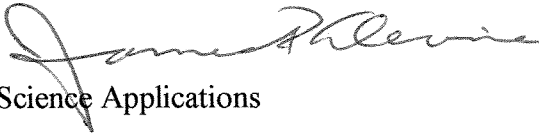
Reply Refer To:  
Mail Stop 423  
BLM

196952

JUL 20 2004

## MEMORANDUM

To: Bureau of Land Management  
Anchorage, Alaska

From: James F. Devine   
Senior Advisor for Science Applications

Subject: Review of Draft Environmental Impact Statement Northeast National Petroleum Reserve-Amended Integrated Activity plan Alaska

As requested by the U.S. Department of the Interior, Office of Bureau of Land Management (BLM), in their correspondence of June 10, 2004, the U.S. Geological Survey (USGS) has reviewed the subject Draft Environmental Impact Statement (DEIS) and offers the following comments:

### GENERAL COMMENT:

001  
Geology

In Chapter 3, the description of the affected environment, natural seepage of oil and gas in and near the Northeast National Petroleum Reserve – Alaska (NPRA) planning area was not mentioned. Oil seeps are known (and described in the literature) at Umiat and Fish Creek within the planning area and at Cape Simpson, just to the northwest outside of the area. Some gas bubbles are associated with the Umiat oil seep. Considering the large size of the planning area and the relatively small “footprint” of the described natural seepages, it is very likely that there are additional natural hydrocarbon occurrences in this area.

### SPECIFIC COMMENTS:

#### Page 2-7, Chapter 2 Alternatives, Section 2.3 Description of the Alternatives, Table 2-1:

002  
Edits

The percentages of land available and restricted for alternative B do not add to 100%. The 4.387 million acres is 95.3% of 4.6 million acres, not 97% as reported in the table.

003  
Geology

**Page 3-7, CHAPTER 3: DESCRIPTION OF THE AFFECTED ENVIRONMENT, Section 3.2.3 Physiography, Subsection 3.2.3.1 Arctic Coastal Plain Province:**

The Arctic Coastal Plain Province in the planning area is bordered on the north by the Arctic Ocean, but there is no mention of this nor the characteristics of the coastline.

004  
Geology

**Page 3-10, CHAPTER 3: DESCRIPTION OF THE AFFECTED ENVIRONMENT, Section 3.2.4 Geology and Minerals, Subsection 3.2.4.2 Minerals; Uranium Potential:**

The cited reference (Gryc, 1985) for documenting the presence of uranium in the Arctic Coastal Plain (ACP) of NPRA is not correct. There is no mention of uranium in that publication. There is a brief report by Huffman (1985) that indicates very low uranium content in the Nanushuk Group rocks exposed at the surface. The citation for that report is below:

Huffman, A.C., Jr., 1985, Uranium potential of the Cretaceous Nanushuk Group, North Slope, Alaska, in Huffman, A.C., Jr., ed., Geology of the Nanushuk Group and related rocks, North Slope, Alaska: U.S. Geological Survey Bulletin 1614, p. 121–123.

005  
Geology

**Page 3-10, CHAPTER 3: DESCRIPTION OF THE AFFECTED ENVIRONMENT, Section 3.2.4 Geology and Minerals, Subsection 3.2.4.2 Minerals; Coal Resources:**

The coal resource comments are correct, but references are needed similar to references in all the other mineral categories considered.

006  
Edits

**Page 3-12, CHAPTER 3: DESCRIPTION OF THE AFFECTED ENVIRONMENT, Section 3.2.5 Petroleum Resources, Subsection 3.2.5.2 Petroleum Activities in Northern Alaska:**

In the last paragraph on the page and elsewhere in the text, reference is made to the “Alpine Project field.” The correct name, as used by the community (the press, State of Alaska, and technical literature), is “Alpine field”. Not using the correct name is confusing.

007  
Geology

**Page 3-13, CHAPTER 3: DESCRIPTION OF THE AFFECTED ENVIRONMENT, Section 3.2.5 Petroleum Resources, Subsection 3.2.5.2 Petroleum Activities in Northern Alaska; Past Exploration Efforts:**

In the discussion of the ‘new Jurassic play’ revealed by the Alpine discovery, one could also reference the report by Houseknecht (see references) describing the Beaufortian plays that were identified and evaluated in the 2002 USGS assessment of the NPRA.

008  
Edits

**Page 3-16, CHAPTER 3: DESCRIPTION OF THE AFFECTED ENVIRONMENT, Section 3.2.5 Petroleum Resources, Subsection 3.2.5.2 Petroleum Activities in Northern Alaska; Oil and Gas Resource Assessment, fourth paragraph:**

In the interests of clarity, the 2002 USGS assessment of the NPRA was not done “in cooperation with the MMS” and that assessment does not strictly update the “National Resource Assessment conducted in 1995” because the 1995 assessment did not deal specifically with the NPRA, only with northern Alaska as a whole.

009  
Development

**Page 4-22 and 4-23, Chapter 4 Environmental Consequences, Section 4.2, Introduction and Basic Assumptions for the Environmental Consequences Assessment, Section 4.2.1, Ground-impacting Management Actions, Section 4.2.1.2, Oil and Gas Exploration and Development Activities, Figure 4-1 and Table 4-3:**

The figure shows the satellite pads as requiring 20 acres, but the disturbance of only 10 acres per pad is accounted for in the table.

010  
Seismic

**Page 4-38, Chapter 4: Environmental Consequences, Section 4.2.1.2 Oil and Gas Exploration and Development Activities, Development Subsection Scenarios; Subsection *Seismic Operations*:**

The fifth paragraph refers to nearby figure 4-3 showing the location of seismic surveys in the planning area. Seismic surveys conducted in the planning area in 1980 and 1981 by the USGS/Husky are not shown in figure 4-3 and the text implies that these USGS surveys are proprietary, which is not the case. They are publicly available and are referenced below.

011  
Geology

**Page 4-66, Chapter 4 Environmental Consequences, Section 4.3, Alternative A (No Action Alternative), Section 4.3.4 Water Resources, Section 4.3.4.1 Surface Water and Groundwater Resources, first full paragraph, second-to-last sentence:**

The sentence states that shallow, marshy, ponded, or flooded tundra can reach summer temperatures of 18 degrees Fahrenheit; this seems too low and unlikely, as it is still well below freezing, given that the average temperature in July is reported to be 46 degrees on page 3-5. Perhaps, additional new or reiterated information on the depth of permafrost in this type of environment, including discussion of air/water temperature variability during the summer months, such as daily and monthly ranges, would help clarify the seeming inconsistency. The DEIS cites Miller et al. (1980) in two other places and attributes a different temperature each time the report is cited. On page 4-48 the Miller report (1980) is cited as stating that shallow waters on the tundra can reach 66 degrees (second-to-last paragraph, last sentence), which seems high compared to the reported average July temperature.

012  
Geology

On page 4-181 Miller is cited again as stating that the waters can reach 64 degrees (first full paragraph, fourth sentence). In light of these discrepancies, the USGS recommends that the report be given a complete verification review.

013  
Oil Spill S.

**Page 4-69, Chapter 4 Environmental Consequences, Section 4.3, Alternative A (No Action Alternative), Section 4.3.4 Water Resources, Section 4.3.4.2 Surface Water and Groundwater Quality, Effects of Spills, fourth paragraph:**

The third sentence, "The spreading of the spill over about 60 acres ... could be considered an effect on water quality." An explanation should be provided as to how the 60-acre spread area in Teshekpuk Lake for this 325-bbl spill was calculated, as this affected area differs substantially from the modeling results provided in Appendix K. Table K-6 (page K-13), Fate and Behavior of a Hypothetical 500 bbl Oil Spill from Lagoon Pipelines, indicates that this spill could cover almost 64 square miles after 30 days.

14

**Page 4-184, Chapter 4 Environmental Consequences, Section 4.4, Alternative B (Preferred Alternative), Section 4.4.4 Water Resources, Section 4.4.4.2 Surface Water and Groundwater Quality, second paragraph:**

Justification should be provided for the statement, "Effects of spills less than 1,000 bbl can be considered negligible. A spill greater than or equal to 1,000 bbl could temporarily (for about a month) contaminate water above the chronic criterion of 0.015 ppm in an area 100,000 acres [about 156 sq. miles] or larger." Model results shown in Table K-7 (appendix K, page K-13), Fate and Behavior of a Hypothetical 900 bbl Oil Spill from a Lagoon Facility, indicates that this spill could cover almost 87 square miles after 30 days. The affected areas cited in table K-7 and in page 4-184 differ substantially; this difference should be explained in the text.

Thank you for the opportunity to review and comment on this DEIS.

#### REFERENCES:

Houseknecht, D.W., 2003, Beaufortian Stratigraphic Plays in the National Petroleum Reserve in Alaska (NPRA): U.S. Geological Survey Open-File Report 03-040, 47 p. Available online at: <http://pubs.usgs.gov/of/2003/of03-040/>

Huffman, A.C., Jr., 1985, Uranium potential of the Cretaceous Nanushuk Group, North Slope, Alaska, *in* Huffman, A.C., Jr., ed., Geology of the Nanushuk Group and related rocks, North Slope, Alaska: U.S. Geological Survey Bulletin 1614, p. 121-123.

U. S. Geological Survey, Central Region Energy Resources Team, National Petroleum Reserve, Alaska, Legacy data archive, Seismic data search page:  
<http://nerslweb.cr.usgs.gov/NPRAWEB/seissrch.asp>